

PgmNr 2363: Multiple waves of peopling northeast Europe: An ancient DNA study through Mesolithic to the Middle Ages.

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aDNA studies have resketched the peopling story of Europe highlighting the major role of three distinct mass immigrations in the Mesolithic, Neolithic and Early Bronze Age periods. Here we look at these processes in Estonia representing northeast Europe. One key difference of this region from the rest of Europe is high (30-40%) frequency of chr Y haplogroup N3a, which is otherwise spread in Siberia. Genome wide the Siberian component makes up only a few percent of the genepool of Northeast Europeans. We sample each major cultural transition in the region and follow the accompanying demographic changes. The earliest Mesolithic samples cluster together with the Western hunter-gatherers of Europe (WHG). The arrival of Comb Ceramics Culture (CCC) is coupled with Eastern hunter-gatherer (EHG) genetic ancestry. The arrival of Corded Ware Culture (CWC) in Late Neolithic/Early Bronze Age, is part of the massive immigration to Europe from the Steppes of contemporary Russia, and installs a new genepool.

We then turned to study the genetic ancestry of individuals (N=56) from more recent but as yet genetically unstudied cultural traditions in Estonia: i) the Late Bronze Age (EstBA) (1200-400 BC), ii) the Pre-Roman Iron Age (EstIA) (800/500 BC-50 AD), and iii) Middle Ages samples from Estonia (EstMA) (1200-1600 AD). Compared to the preceding CWC people the genetic ancestry of the EstBA samples shifts back toward that of WHG. While it is the EstIA where we see minute fraction of the Siberian ancestry component for the first time. Moreover, the respective chr Y variant - N3a - is also detected in EstIA samples and not in bearers of the older cultures. This eastern/Siberian ancestry reached the coasts of the Baltic Sea no later than the mid-first millennium BC; i.e. in the same time window as the diversification of west Uralic/Finnic languages. Furthermore, phenotypic characteristics often associated with modern Northern Europeans like light eyes, hair and skin as well as lactose tolerance can be traced back to the Bronze Age in the Eastern Baltic.

During the Middle Ages the Estonian population is socially structured into subpopulations of landlords of likely mostly German origin and the common people. In the pilot phase of the study we have confirmed, that burials from high class cemetery resemble genetically contemporary Germans, while rural and urban cemeteries of common people yield aDNA samples genetically reminiscent of the current Estonian population.